

Pre-Stripped Pre-Stamped Pre-Cut Pre-Stained Pre-Loaded (5Ps) DMEK

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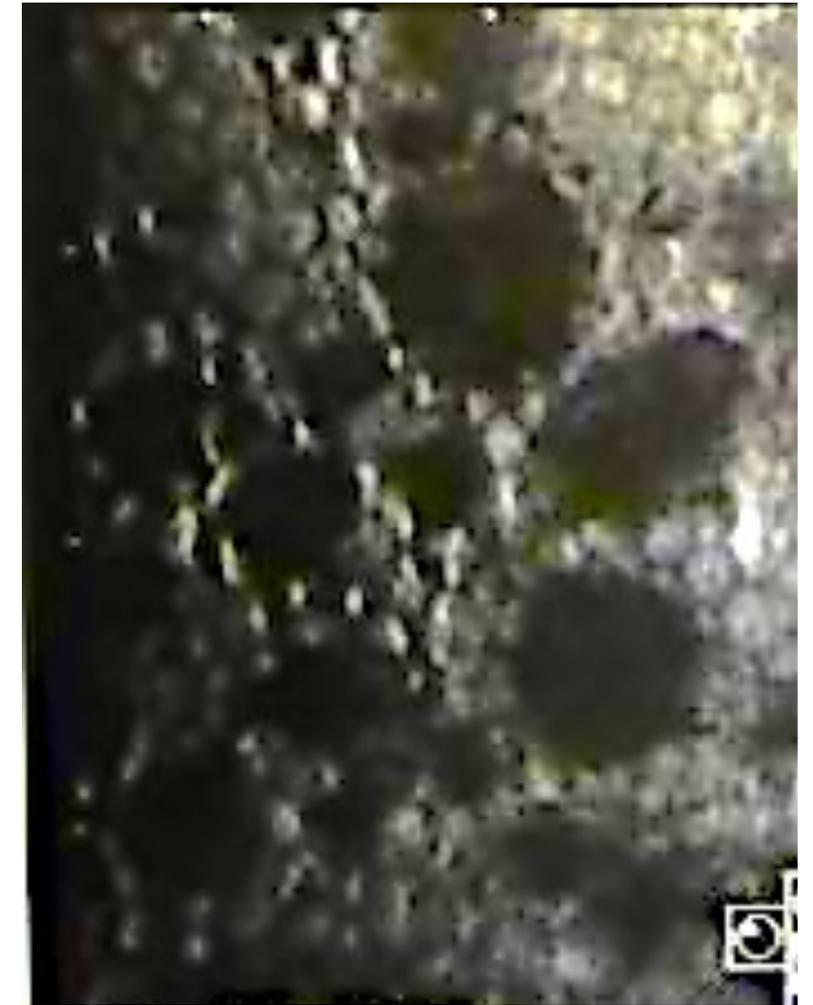
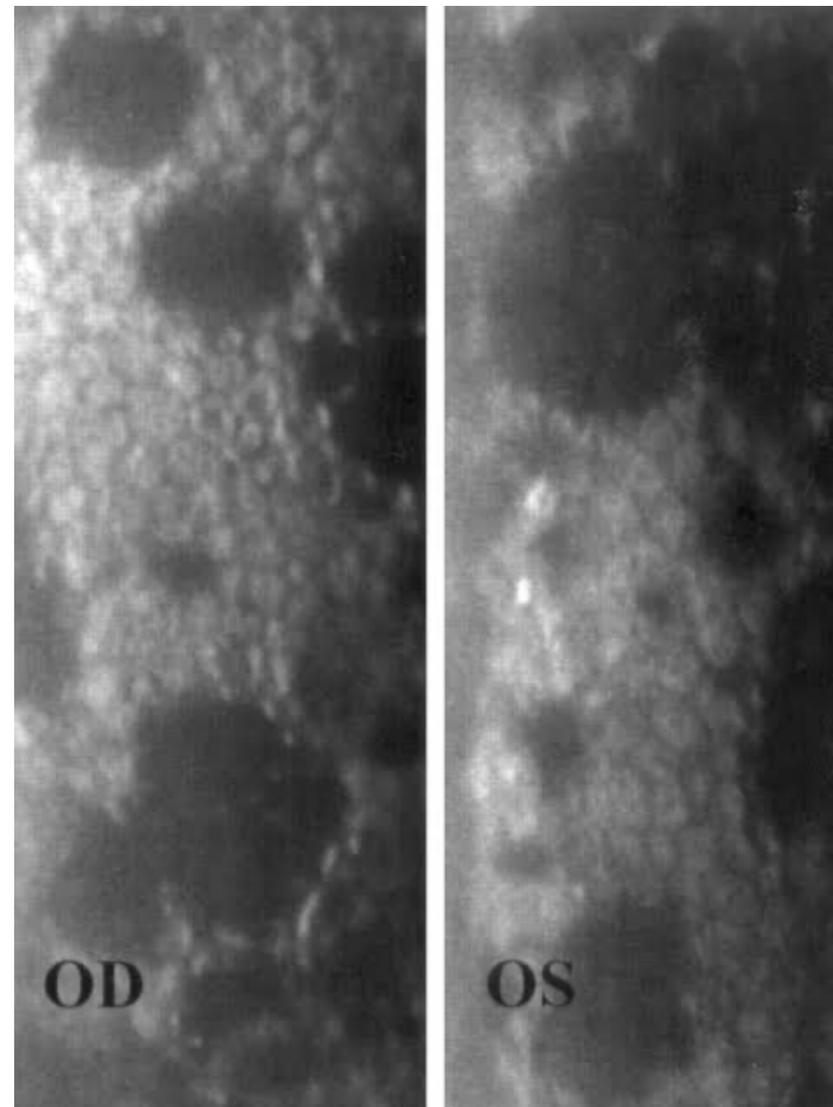
EOS 2023, Thursday, May 18, 2023, InterContinental Citystars, Cairo, Egypt



No financial interest related to this presentation to disclose

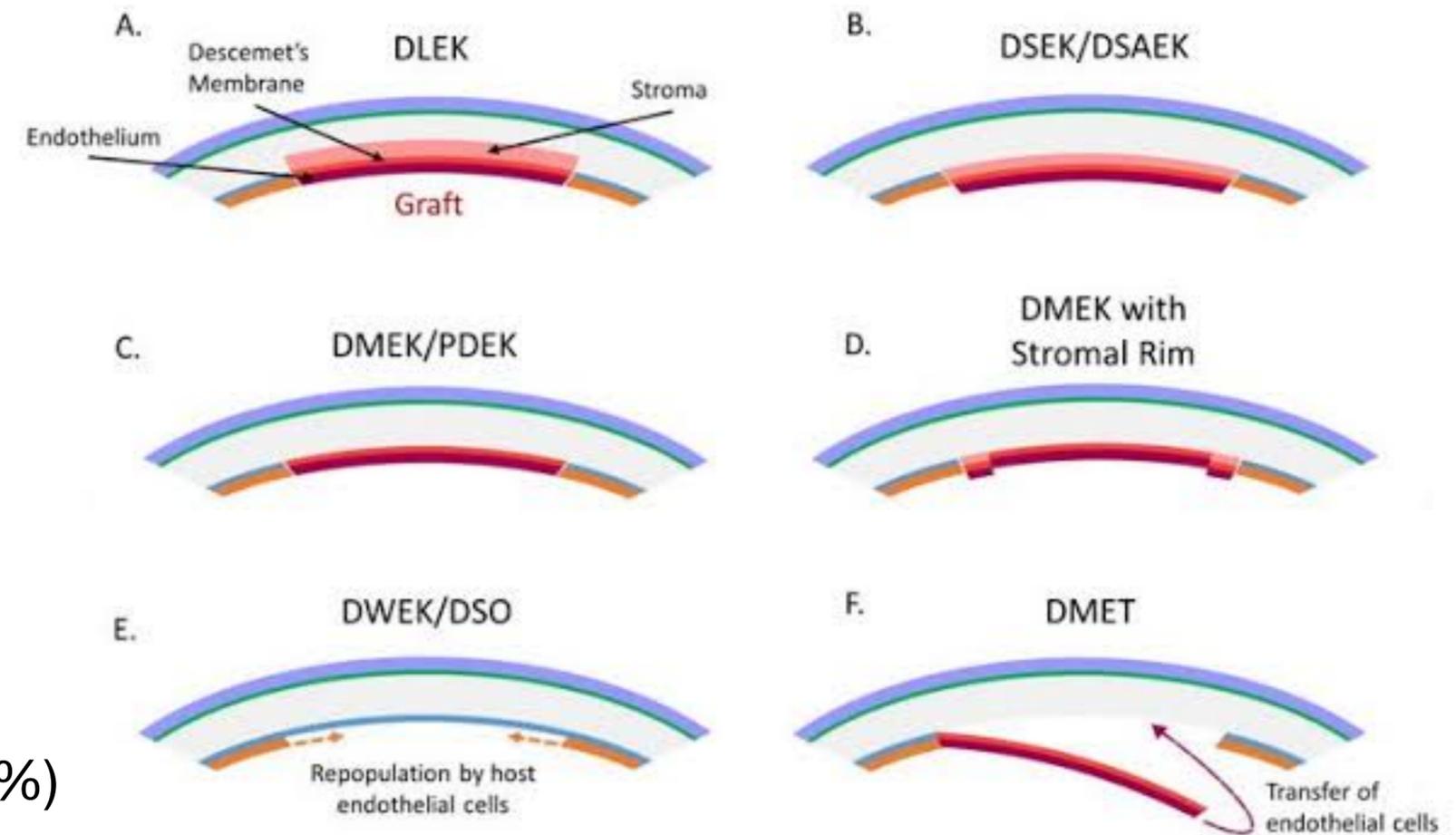
Indications for EK

- Fuchs
- PPMD
- CHED
- ICE
- PBK/ABK
- Graft Failure
- Trauma (Forceps Delivery)



Evolution of EK

- DLEK
- DSEK / DSAEK
- PDEK
- DMEK
- DSO / DWEK
 - Kowa study: Ripasudil QID (GLANATEC 0.4%)
 - Trefoil study: TTHX114 (Engineered FGF-1)
- DMET
- Injectable Endothelial Cell Therapy
 - EMMECELL: HCECs expanded in culture + magnetic nanoparticles
 - AURION BIOTECH: HCECs expande in culture + Rho Kinase Inhibitor
- EndoArt: Clear synthetic biocompatible polymer barrier by EyeYon Medical (?)



Primary Reasons for Learning DMEK

- Represents exact anatomic replacement EK
- Better visual results than DSAEK
- Faster visual recovery than DSAEK
- Has a lower rejection rate than DSAEK (<1% in first two years)

Cases that should NOT have DMEK

- Eyes with Tubes and Trabs
- Eyes with AC IOLs left in place
- Aphakia
- Eyes with Pupils that can NOT be constricted
- Eyes with prior vitrectomy

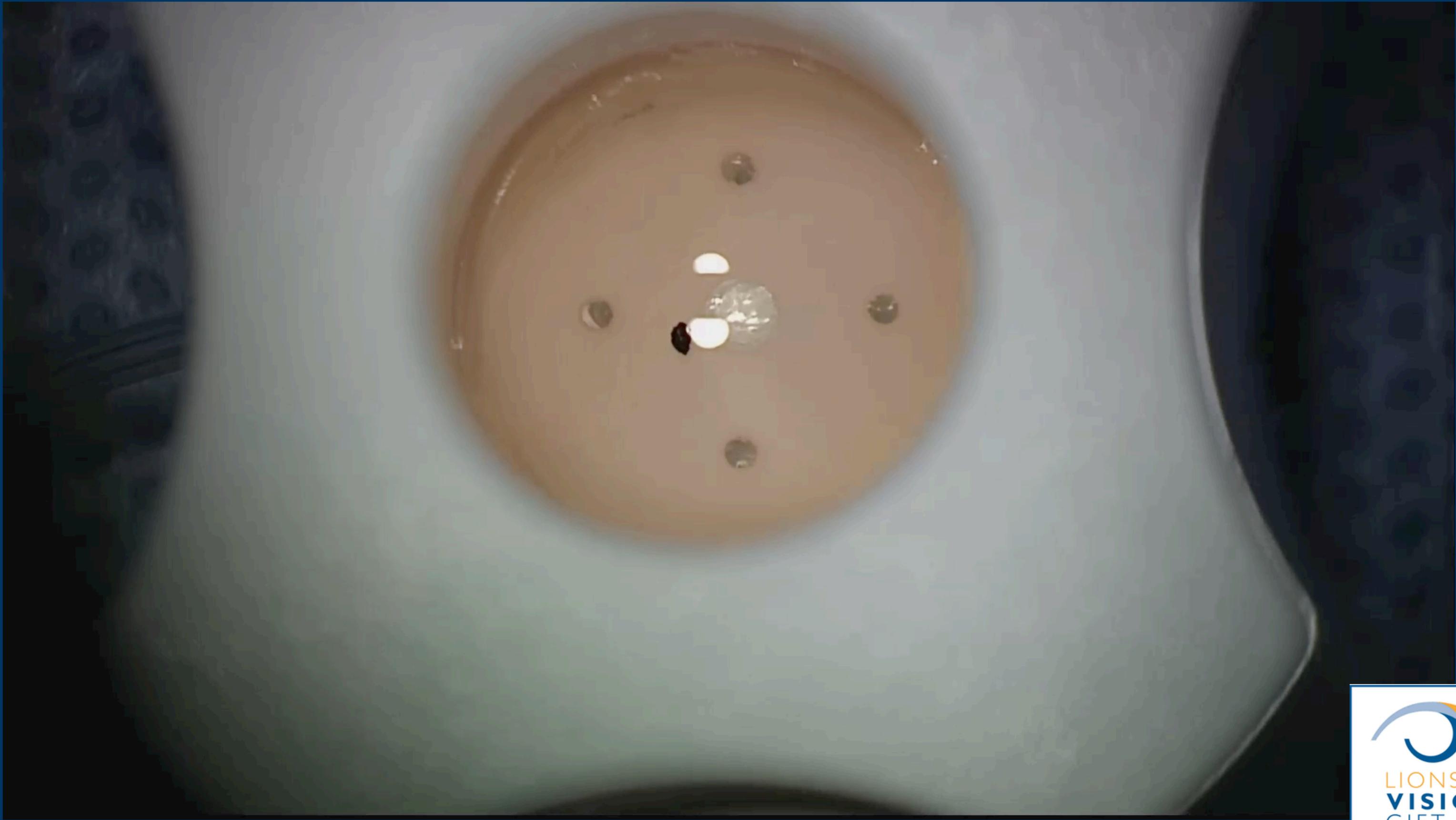
So every surgeon doing DMEK needs to keep their DSAEK skills sharp!

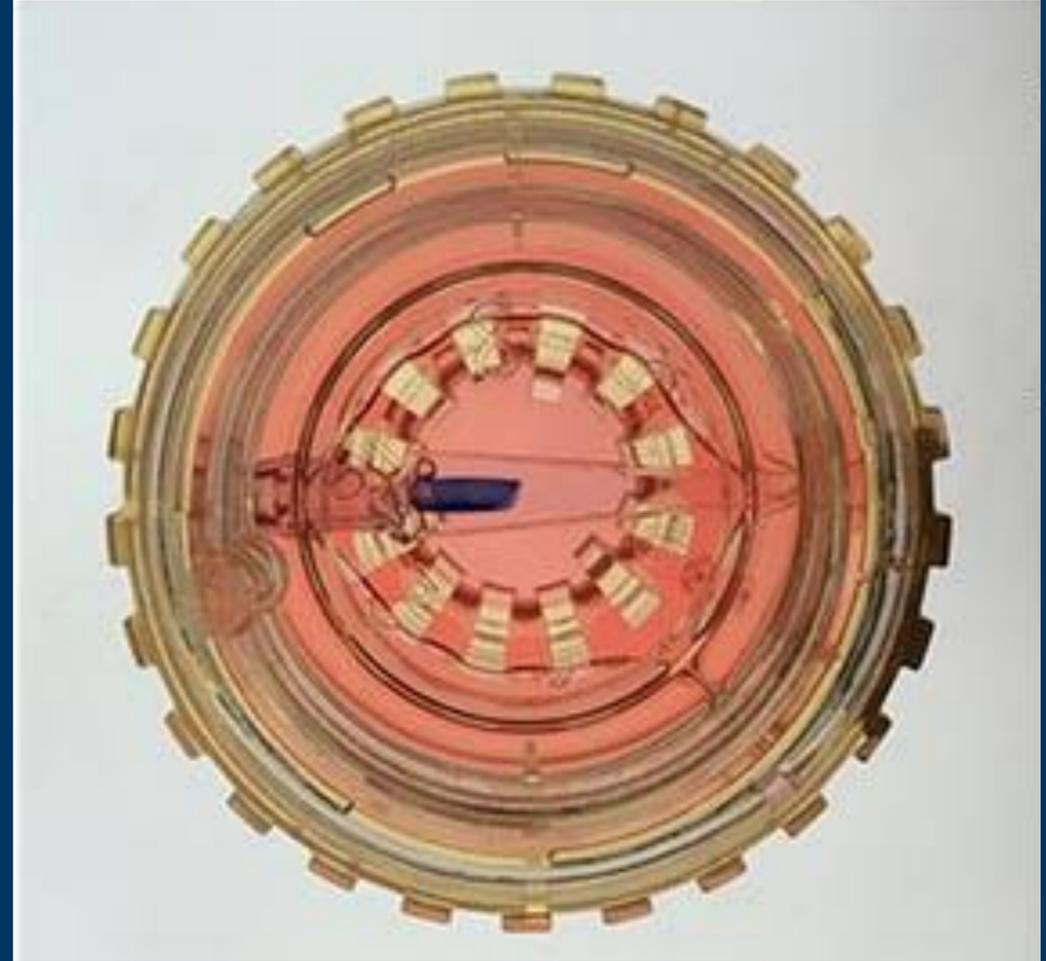
Surgeons are hesitant to learn DMEK

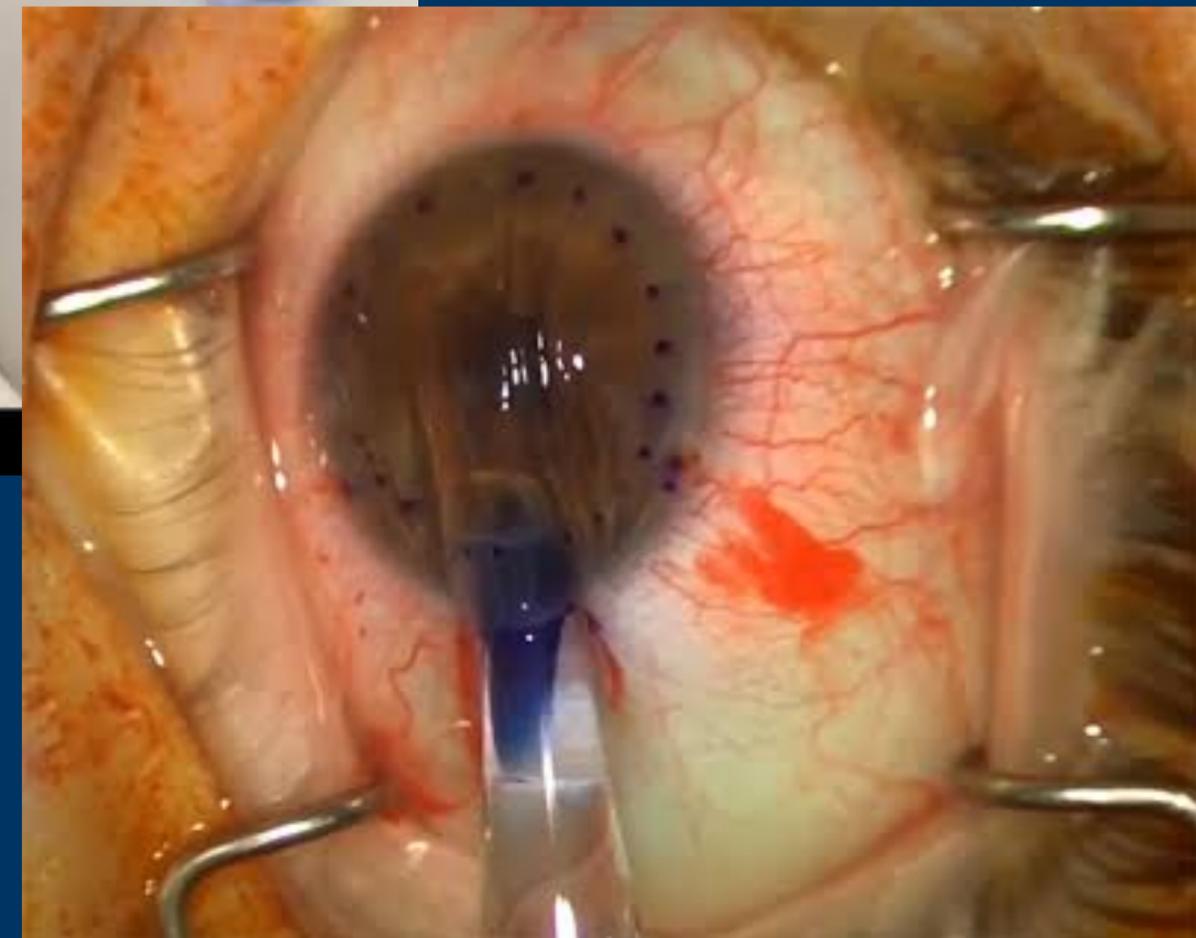
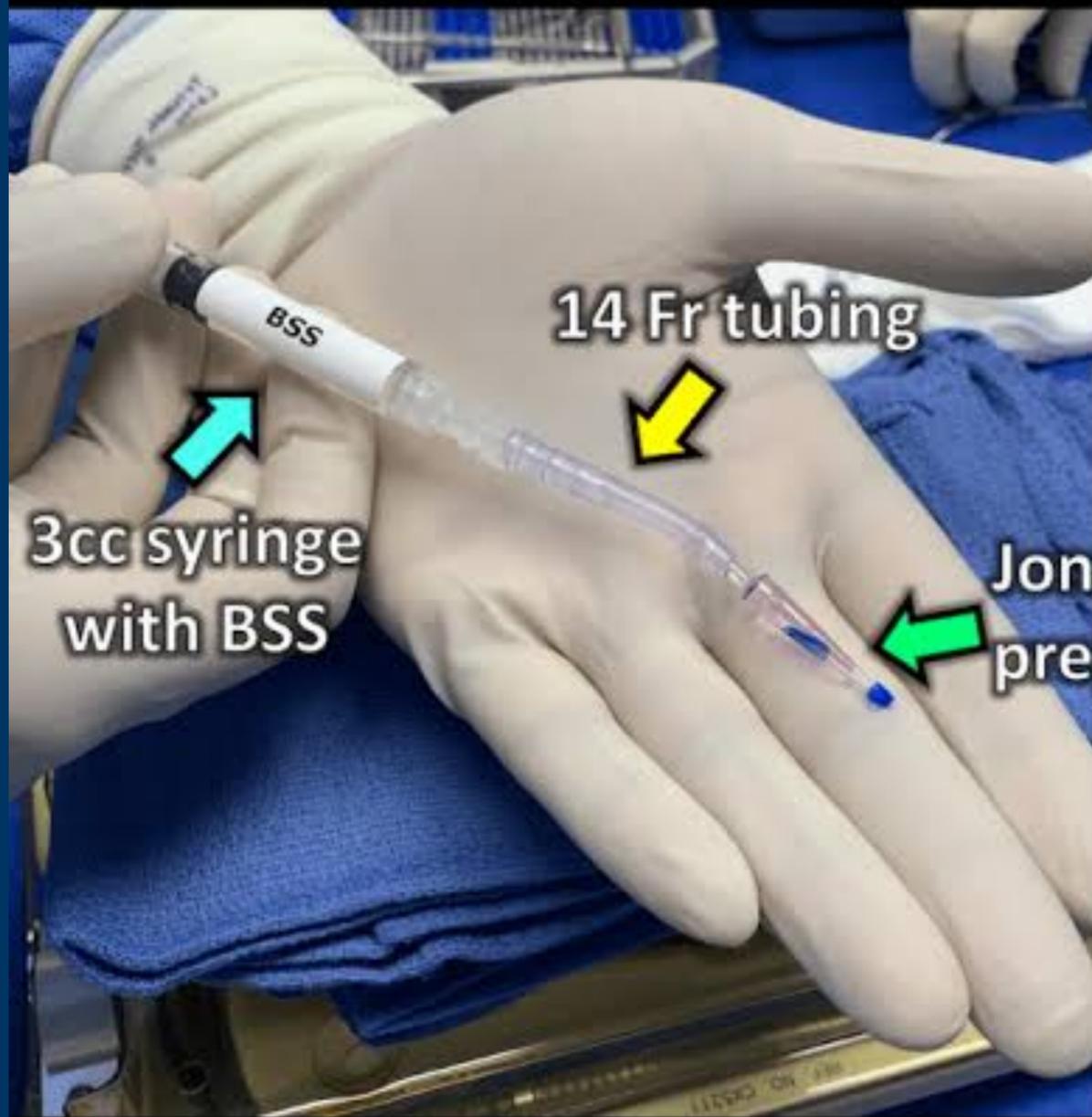
- Procedure is too hard and takes too long
- Stripping the donor tissue in OR risks tearing it, cancelling the case, and still being stuck with \$ graft invoice
- Re-bubble rate and primary graft failure rate is much higher in DMEK than DSAEK, even in hands of experts
- My patients are already happy with DSAEK, so why change?

Terry MA. Endothelial Keratoplasty:

Why aren't we all doing DMEK? *Cornea* 2012; 31(5): 469-71









Comparison of preservation and transportation protocols for preloaded Descemet membrane endothelial keratoplasty

Vito Romano,^{1,2} Mohit Parekh,³ Alessandro Ruzza,³ Colin E Willoughby,^{1,4} Stefano Ferrari,³ Diego Ponzin,³ Stephen B Kaye,^{1,4} Hannah J Lewis⁴

ABSTRACT

Background/aims Descemet membrane endothelial keratoplasty (DMEK) preparation is technically demanding and is a limiting factor for uptake of this kind of surgery. Supply methods that simplify the procedure for surgeons are key to increasing uptake. This study

endothelial keratoplasty (DMEK) show rior outcomes compared with Descemet s automated endothelial keratoplasty in terms of visual outcomes and rehabilitation rates.⁴ Uptake of DMEK, however, is relatively low, possibly because of the skill required in graft preparation.

BASIC INVESTIGATION

Prestained and Preloaded DMEK Grafts: An Evaluation of Tissue Quality and Stain Retention

Dorian A. Zeidenweber, MD,* Khoa D. Tran, PhD,† Christopher S. Wehrer, MD,† Michael D. Straiko, MD,* and Mark A.

Purpose: To examine endothelial cell damage and stain retention of prestained preloaded Descemet membrane endothelial keratoplasty (DMEK) grafts.

Methods: DMEK grafts were stained with trypan blue or left unstained before loading into a Straiko modified Jones tube. A protocol to stain preloaded grafts inside the modified Jones tube and resulting cell loss was also examined. Endothelial cell loss was determined by vital dye staining after 3 days of cold storage and compared between the 3 groups. Eight additional grafts were stained, loaded, and shipped from Oregon to New York to assess stain stability. Stain retention and the ability to successfully inject and open these “prestained preloaded” grafts in cadaveric donor eyes were also evaluated.

Progression of endothelial decade has been notewort transition from penetrating k ping automated endothelial l membrane endothelial kera patient outcomes have remain ongoing refinement of DME growing interest among surge efficient without compromising

The use of eye bank–p sue has helped reduce intr complications related to tiss room (OR). Even so, surge stripped tissue are still taske preparation before delivering

Purpose: To describe the technique, advantages, and early complication rates of using Descemet membrane endothelial keratoplasty (DMEK) donor tissue that is prestained and preloaded into an injector at the eye bank and delivered in a storage medium to the surgeon for transplantation 1 to 2 days later.

Methods: A total of 111 eyes with endothelial failure underwent DMEK using donors that were prestripped, prestained, S-stamped, and preloaded into a Straiko modified Jones tube and delivered in an



Viability of preloaded Descemet membrane endothelial keratoplasty grafts with 96-hour shipment

Conan Chen,¹ Steven Jared Solar,² John Lohmeier,³ Staci Terrin,³ Satya Baliga,² Batya Gold Wiener,² Daniel Schouten Lewis,² Eric Chiang,² Kali Alexandra Barnes,² Akash Chaurasia,² Allen O Eghrari⁴

To cite: Chen C, Solar SJ, Lohmeier J, et al. Viability of preloaded Descemet membrane endothelial keratoplasty grafts with 96-hour shipment. *BMJ Open Ophthalmology* 2021;6:e000679. doi:10.1136/bmjophth-2020-000679

Received 3 January 2021
Revised 10 March 2021
Accepted 21 March 2021

ABSTRACT

Objective To assess feasibility and compare the effects of 96-hour shipment of Descemet membrane endothelial keratoplasty (DMEK) grafts as a scroll or a tri-fold on cell viability.

Methods and analysis DMEK grafts were prepared at the Rocky Mountain Lions Eye Bank. Twenty pre-stripped DMEK grafts, paired from 10 donors, were either tri-folded in an endothelium-in configuration using microforceps and loaded into a plastic Treytech cartridge, or suctioned in a scrolled endothelium-out configuration into a modified Jones Tube. Grafts were shipped via FedEx to a secondary

Key messages

What is already known about this subject?

▶ Scroll-based, preloaded Descemet membrane endothelial keratoplasty (DMEK) can be safely stored in place for 5 days or shipped over a 3-day period; however, data is still needed regarding endothelial cell viability for preloaded DMEK grafts shipped beyond 72 hours.

What are the new findings?

▶ This study finds that both tri-folded and scroll-based

Safety of Long-Term Storage and Shipping of Prestripped, Prestained, and Preloaded Descemet Membrane Endothelial Keratoplasty Tissue

Jason Hooton, MD,* Kyeong Hwan Kim, MD, PhD,* Stephen I. Lentz, PhD,† Nicholas Hicks, Kayla Jones, CEBT,‡ Kristen McCoy, CEBT,‡ and Shahzad I. Mian, MD*

Key Words: DMEK, preloaded, prestained, storage (*Cornea* 2019;38:1023–1028)

Purpose: The purpose of this study was to determine the safety of long-term storage and shipping of prestripped, prestained, and preloaded Descemet membrane endothelial keratoplasty (p³DMEK) grafts.

Methods: A total of 33 cadaveric corneas were prestripped, prestained, and preloaded using modified Jones tube injectors as p³DMEK. The corneas were masked to groups that were prepared <9 hours (control), 48 hours, and 72 hours before unloading and analysis. The 48- and 72-hour tissues were shipped by airfreight on each day before arrival to simulate domestic and international shipping. The corneas were then stained using Calcein AM vital dye (Molecular Probes, Eugene, OR) and imaged using an inverted confocal

Corneal transplantation has changed significantly the past 2 decades because sophisticated preparation and implantation techniques allow surgeons to replace damaged or diseased corneal tissue with donor grafts.^{1–4} Endothelial keratoplasty (EK) is a commonly performed type of corneal transplantation in the United States,⁵ with 28,991 reported cases in 2017. Descemet membrane endothelial keratoplasty (D

Cell Tissue Bank
<https://doi.org/10.1007/s10561-020-09814-7>



CLINICAL SCIENCE

Preloaded Descemet Membrane Endothelial Keratoplasty Donor Tissue: Surgical Technique and Early Clinical Results

Lara R. Newman, MD,* David L. DeMill, MD,* Dorian A. Zeidenweber, MD,* Zachary M. Mayko, MS,† Alex J. Bauer, BS,† Khoa D. Tran, PhD,† Michael D. Straiko, MD,*† and Mark A. Terry, MD*†

Key Words: Descemet membrane endothelial keratoplasty, preloaded DMEK, DMEK clinical outcomes, endothelial keratoplasty, eye banking

(*Cornea* 2018;0:1–6)

Endothelial keratoplasty (EK) has rapidly evolved over the past 2 decades and has now become the preferred method of corneal transplantation for patients with endothelial

Comparison of preloaded grafts for Descemet membrane endothelial keratoplasty (DMEK) in a novel preloaded transport cartridge compared to conventional precut grafts

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Received: 13 February 2019 / Accepted: 29 January 2020
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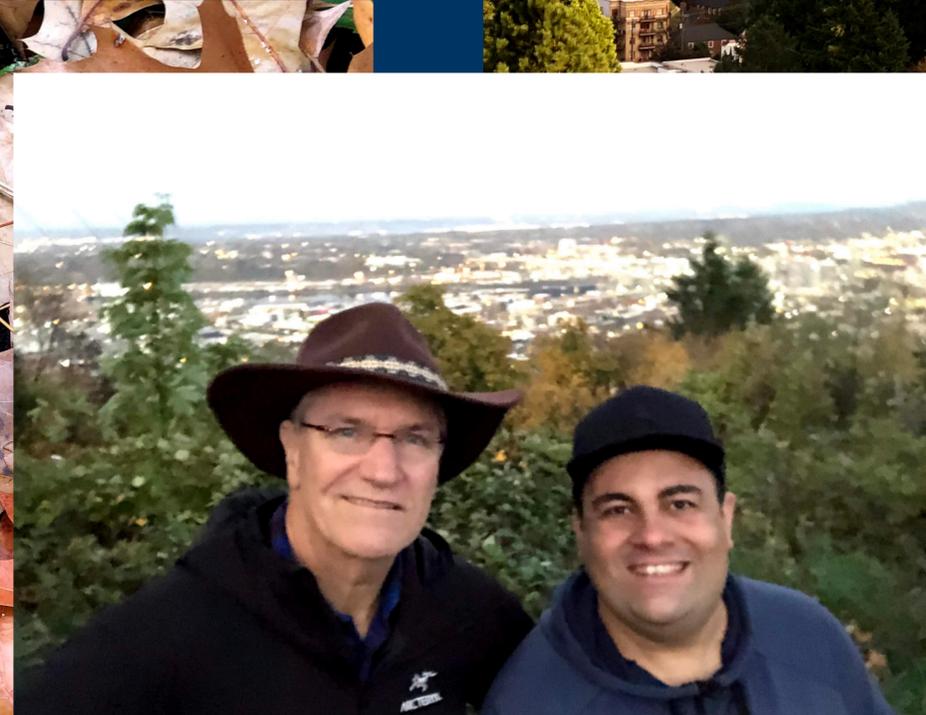
Abstract To determine the safety and graft quality of eye bank precut and preloaded grafts for Descemet membrane endothelial keratoplasty (DMEK) after storage and shipping in a novel preloaded transport cartridge

and injection. In the control group the ECL was mean 1.6% ± 2.7% after 24 h compared to 3.7% ± 0.9% ($p = 0.042$) after 48 h. The slightly higher endothelial cell loss in the viewing chamber group after 48 h was not

Take Home Message:

(5Ps) DMEK

- Enables the surgeon to focus on patient & increases surgical efficiency
- Avoid the risk of damaging endothelial tissue during graft preparation
- Save the cost of trypan blue, trephine blades and AC equipments



Thank You for Your Attention!
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